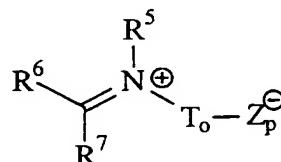


## WHAT IS CLAIMED IS:

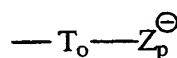
1. A bleach system for laundering fabrics in need of cleaning comprising from about 0.001 ppm to about 5 ppm of a zwitterionic organic catalyst compound selected from the group consisting of:

- 5 a) aryliminium zwitterions, which have a net charge of from about +3 to about -3, that are represented by the formula [II]:



[II]

- 10 where  $\text{R}^5\text{--R}^7$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:

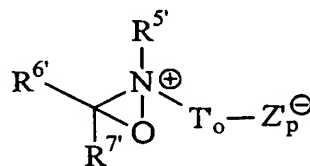


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where  $\text{Z}_p^-$  is covalently bonded to  $\text{T}_o$ , and  $\text{Z}_p^-$  is selected from the group consisting of  $\text{---CO}_2^-$ ,  $\text{---SO}_3^-$ ,  $\text{---OSO}_3^-$ ,  $\text{---SO}_2^-$  and  $\text{---OSO}_2^-$  and p is either 1, 2 or 3;  $\text{T}_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring;

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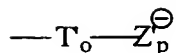
b) oxaziridinium zwitterions, which have a net charge of from about +3 to about -3, that are represented by formula [IV]:



[IV]

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where  $\text{R}^{5'}\text{--R}^{7'}$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



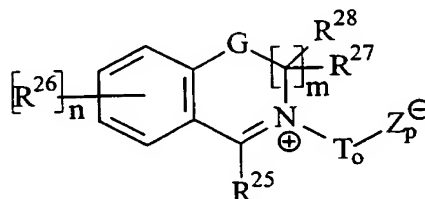
where  $Z_p^{\ominus}$  is covalently bonded to  $T_o$ , and  $Z_p^{\ominus}$  is selected from the group consisting of  $-CO_2^-$ ,  $-SO_3^-$ ,  $-OSO_3^-$ ,  $-SO_2^-$  and  $-OSO_2^-$  and p is either 1, 2 or 3;  $T_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; and

c) mixtures thereof.

2. The bleach system according to Claim 1 wherein said bleach system further comprises from about 2.0 ppm to about 1200 ppm of one or more peroxygen source.
3. The bleach system according to Claim 1 wherein said bleach system further comprises from about 0.5 ppm to about 300 ppm of one or more peracids.
4. The bleach system according to Claim 1 wherein said bleach system further comprises from about 1.0 ppm to about 600 ppm of one or more peroxygen compounds.
5. The bleach system according to Claim 2 wherein said peroxygen source is selected from the group consisting of:
  - (a) preformed peracid compounds selected from the group consisting of percarboxylic acids and salts, percarbonic acids and salts, perimidic acids and salts, peroxy monosulfuric acids and salts, and mixtures thereof;
  - (b) hydrogen peroxide sources selected from the group consisting of perborate compounds, percarbonate compounds, perphosphate compounds and mixtures thereof; and a bleach activator.
6. The bleach system according to Claim 1 wherein said zwitterionic organic catalyst compound is present at a concentration of from about 0.01 ppm to about 3 ppm.
7. The bleach system according to Claim 6 wherein said zwitterionic organic catalyst compound is present at a concentration of from about 0.1 ppm to about 2 ppm.
8. The bleach system according to Claim 7 wherein said zwitterionic organic catalyst compound is present at a concentration of from about 0.2 ppm to about 1 ppm.

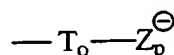
9. The bleach system according to Claim 1 wherein said zwitterionic organic catalyst compound is selected from the group consisting of:

- a) aryliminium zwitterions, which have a net charge of from about +3 to about -3,  
5 that are represented by the formula [XII]:



[XII]

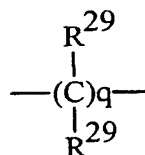
- 10 where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; and n is an integer from 0 to 4; each R<sup>26</sup> is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic, and carboalkoxy radicals, and any two vicinal R<sup>26</sup> substituents may combine to form a fused aryl, fused  
15 carbocyclic or fused heterocyclic ring; R<sup>25</sup> may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



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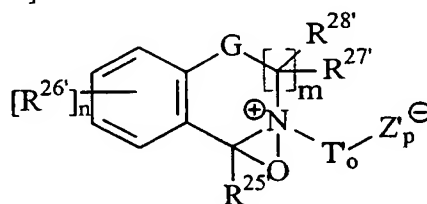
where Z<sub>p</sub><sup>-</sup> is covalently bonded to T<sub>o</sub>, and Z<sub>p</sub><sup>-</sup> is selected from the group consisting of -CO<sub>2</sub><sup>-</sup>, -SO<sub>3</sub><sup>-</sup>, -OSO<sub>3</sub><sup>-</sup>, -SO<sub>2</sub><sup>-</sup> and -OSO<sub>2</sub><sup>-</sup> and p is either 1, 2 or 3; T<sub>o</sub> is selected from the group consisting of:

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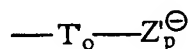
wherein q is an integer from 1 to 8; R<sup>29</sup> is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl

- and amide groups; G is selected from the group consisting of: (1) -O- ; (2) -N(R<sup>30</sup>)-; and (3) -N(R<sup>30</sup>R<sup>31</sup>)-; R<sup>27</sup>, R<sup>28</sup>, R<sup>30</sup> and R<sup>31</sup> are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkenes, heterocyclic ring, alkoxys, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R<sup>25</sup>, R<sup>26</sup>, R<sup>27</sup>, R<sup>28</sup>, R<sup>30</sup> and R<sup>31</sup> may be joined together with any other of R<sup>25</sup>, R<sup>26</sup>, R<sup>27</sup>, R<sup>28</sup>, R<sup>30</sup> and R<sup>31</sup> to form part of a common ring; any geminal R<sup>27</sup> - R<sup>28</sup> may combine to form a carbonyl; any vicinal R<sup>27</sup> - R<sup>31</sup> may join to form unsaturation; and wherein any one group of substituents R<sup>27</sup> - R<sup>31</sup> may combine to form a substituted or unsubstituted fused unsaturated moiety;
- b) oxaziridinium zwitterions, which have a net charge of from about +3 to about -3, that are represented by formula [XIV]:

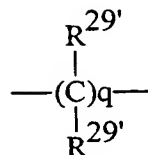


[XIV]

- wherein m is 1 to 3 when G is present and m is 1 to 4 when G is not present; and n is an integer from 0 to 4; each R<sup>26'</sup> is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic, and carboalkoxy radicals, and any two vicinal R<sup>26'</sup> substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R<sup>25'</sup> may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; the radical represented by the formula:



- where Z'<sub>p</sub><sup>-</sup> is covalently bonded to T'<sub>o</sub>, and Z'<sub>p</sub><sup>-</sup> is selected from the group consisting of -CO<sub>2</sub><sup>-</sup>, -SO<sub>3</sub><sup>-</sup>, -OSO<sub>3</sub><sup>-</sup>, -SO<sub>2</sub><sup>-</sup> and -OSO<sub>2</sub><sup>-</sup>, and a is either 1 or 2; T'<sub>o</sub> is selected from the group consisting of:

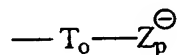


wherein q is an integer from 1 to 8; R<sup>29'</sup> is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups; G is selected from the group consisting of: (1) -O-; (2) -N(R<sup>30'</sup>)-; and (3) -N(R<sup>30'</sup>R<sup>31'</sup>)-; R<sup>27'</sup>, R<sup>28'</sup>, R<sup>30'</sup> and R<sup>31'</sup> are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkenes, heterocyclic ring, alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R<sup>25'</sup>, R<sup>26'</sup>, R<sup>27'</sup>, R<sup>28'</sup>, R<sup>30'</sup> and R<sup>31'</sup> may be joined together with any other of R<sup>25'</sup>, R<sup>26'</sup>, R<sup>27'</sup>, R<sup>28'</sup>, R<sup>30'</sup> and R<sup>31'</sup> to form part of a common ring; any geminal R<sup>27'</sup>-R<sup>28'</sup> may combine to form a carbonyl; any vicinal R<sup>27'</sup>-R<sup>31'</sup> may join to form unsaturation; and wherein any one group of substituents R<sup>27'</sup>-R<sup>31'</sup> may combine to form a substituted or unsubstituted fused unsaturated moiety; and

15           c)       mixtures thereof.

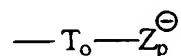
10.     The bleach system according to Claim 9 wherein said zwitterionic organic catalyst compound is an aryliminium zwitterion of the formula [XII] wherein R<sup>25</sup> is H or methyl, R<sup>26</sup> is independently selected from H, alkyl and alkoxy, and for the radical represented by the formula:

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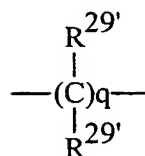


Z<sub>p</sub><sup>-</sup> is -CO<sub>2</sub><sup>-</sup>, -SO<sub>3</sub><sup>-</sup> or -OSO<sub>3</sub><sup>-</sup>, and p is 1 or 2.

25     11.     The bleach system according to Claim 10 wherein said zwitterionic organic catalyst compound is an aryliminium zwitterion of the formula [XII] wherein for the radical represented by the formula:



30     Z<sub>p</sub><sup>-</sup> is -CO<sub>2</sub><sup>-</sup>, -SO<sub>3</sub><sup>-</sup> or -OSO<sub>3</sub><sup>-</sup>, and p is 1, and T<sub>o</sub> is selected from the group consisting of:



wherein  $q$  is an integer from 2 to 4, and each  $\text{R}^{29}$  is individually, independently selected from the group consisting of H and linear or branched  $\text{C}_1\text{-C}_{18}$  substituted or unsubstituted alkyl and aryl.

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12. The bleach system according to Claim 1 wherein said bleach system further comprises a surfactant.

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13. The bleach system according to Claim 1 wherein said bleach system further comprises an enzyme.

14. The bleach system according to Claim 1 wherein said bleach system further comprises a chelating agent.

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15. The bleach system according to Claim 2 wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio of greater than 1:1.

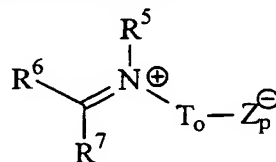
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16. The bleach system of Claim 1 made by the process comprising:

a) providing a wash solution; and

b) adding to said wash solution a bleach composition comprising an amount of zwitterionic organic catalyst compound selected from the group consisting of:

i) aryliminium zwitterions, which have a net charge of from about +3 to about -3, that are represented by the formula [II]:



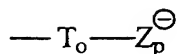
25

[II]

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where  $\text{R}^5\text{-R}^7$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and

carboalkoxy radicals; also present in this formula is the radical represented by the formula:

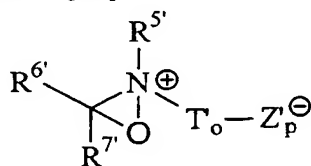


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where  $Z_p^-$  is covalently bonded to  $T_o$ , and  $Z_p^-$  is selected from the group consisting of  $-CO_2^-$ ,  $-SO_3^-$ ,  $-OSO_3^-$ ,  $-SO_2^-$  and  $-OSO_2^-$  and p is either 1, 2 or 3;  $T_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring;

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ii) oxaziridinium zwitterions, which have a net charge of from about +3 to about -3, that are represented by formula [IV]:

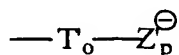


[IV]

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where  $R^{5'}-R^{7'}$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:

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where  $Z_p^-$  is covalently bonded to  $T_o$ , and  $Z_p^-$  is selected from the group consisting of  $-CO_2^-$ ,  $-SO_3^-$ ,  $-OSO_3^-$ ,  $-SO_2^-$  and  $-OSO_2^-$  and p is either 1, 2 or 3;  $T_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; and

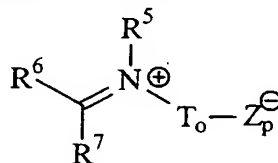
iii) mixtures thereof;

such that the resulting concentration of the zwitterionic organic catalyst compound in said wash solution is from about 0.001 ppm to about 5 ppm.

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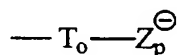
17. A method for laundering a fabric in need of laundering, said method comprises contacting said fabric with a laundry solution having a bleach system according to Claim 1.

18. The method according to Claim 17 wherein said fabric is a colored fabric.
19. The method according to Claim 17 wherein said method is carried out in an automatic washing machine.
20. A bleach system for laundering fabrics in need of cleaning comprising
- a) a peroxygen source; and
  - b) a zwitterionic organic catalyst compound selected from the group consisting of:
    - i) aryliminium zwitterions, which have a net charge of from about +3 to about -3, that are represented by the formula [II]:



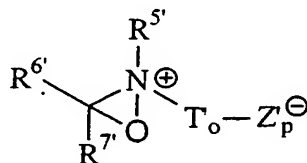
[II]

- where  $\text{R}^5\text{--}\text{R}^7$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



- where  $\text{Z}_p^-$  is covalently bonded to  $\text{T}_o$ , and  $\text{Z}_p^-$  is selected from the group consisting of  $\text{---CO}_2^-$ ,  $\text{---SO}_3^-$ ,  $\text{---OSO}_3^-$ ,  $\text{---SO}_2^-$  and  $\text{---OSO}_2^-$  and p is either 1, 2 or 3;  $\text{T}_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring;

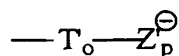
- ii) oxaziridinium zwitterions, which have a net charge of from about +3 to about -3, that are represented by formula [IV]:





[IV]

where  $R^{5'}$ - $R^{7'}$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



where  $Z_p^{\ominus}$  is covalently bonded to  $T_o$ , and  $Z_p^{\ominus}$  is selected from the group consisting of  $-CO_2^-$ ,  $-SO_3^-$ ,  $-OSO_3^-$ ,  $-SO_2^-$  and  $-OSO_2^-$  and p is either 1, 2 or 3;  $T_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; and

iii) mixtures thereof;

wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio greater than 1:1.

21. The bleach system according to Claim 20 wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio of from about 30,000:1 to about 10:1.

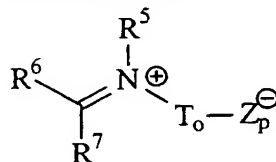
22. The bleach system according to Claim 21 wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio of from about 10,000:1 to about 50:1.

23. The bleach system according to Claim 22 wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio of from about 5,000:1 to about 100:1.

24. The bleach system according to Claim 23 wherein said peroxygen source and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio of from about 3,500:1 to about 150:1.

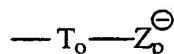
25. A bleach system for laundering fabrics in need of cleaning comprising

- a) a peracid; and  
 b) a zwitterionic organic catalyst compound selected from the group consisting of:  
 i) aryliminium zwitterions, which have a net charge of from about +3 to about -3, that are represented by the formula [II]:



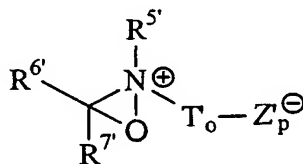
[II]

where  $\text{R}^5$ - $\text{R}^7$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



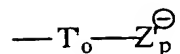
where  $\text{Z}_p^-$  is covalently bonded to  $\text{T}_o$ , and  $\text{Z}_p^-$  is selected from the group consisting of  $-\text{CO}_2^-$ ,  $-\text{SO}_3^-$ ,  $-\text{OSO}_3^-$ ,  $-\text{SO}_2^-$  and  $-\text{OSO}_2^-$  and p is either 1, 2 or 3;  $\text{T}_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring;

- ii) oxaziridinium zwitterions, which have a net charge of from about +3 to about -3, that are represented by formula [IV]:



[IV]

where  $\text{R}^{5'}$ - $\text{R}^{7'}$  are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



5 where  $Z_p^{\ominus}$  is covalently bonded to  $T_o$ , and  $Z_p^{\ominus}$  is selected from the group consisting of  $-CO_2^-$ ,  $-SO_3^-$ ,  $-OSO_3^-$ ,  $-SO_2^-$  and  $-OSO_2^-$  and p is either 1, 2 or 3;  $T_o$  is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; and

iii) mixtures thereof;

10 wherein said peracid and said zwitterionic organic catalyst compound are present in said bleach system at a molar ratio greater than 1:1.